



Aluminum Industry

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Thermal Ceramics offers the aluminum industry the widest selection of refractories and high-temperature insulating materials on the market. Products that can increase your production efficiency, as well as lower energy and maintenance costs at your plant. With our extensive product line and advanced manufacturing capabilities, we can provide you with the exact product or engineered system of products that is right for your specific application. Our major product groups are:

- **Superwool®** - Thermal Ceramics Superwool products are available in various product forms: from blanket and strip to modules, papers, and moldable. Our low biopersistent Superwool products are produced from specific alkaline earth-silicate raw materials. The non-wetting characteristics of Superwool products help make them an excellent choice for aluminum contact applications.
- **Kaowool® and Cerablanket® Blanket/ Strip** - Available in a wide range of roll widths, as well as temperature and density compositions, these refractory ceramic fiber products feature low thermal conductivity, and low-heat storage capacity.
- **Boards/Block** - Thermal Ceramics offers an entire temperature range of insulating boards in a wide array of thicknesses and sizes. TR-19™, TR-19HS, V-1100AL™, V-1200AL™ and Blok® 607® block products are strong, cut to size materials used as backup insulation in electrolytic pots, carbon bake furnaces, melter/holding furnaces, and launders.
- **BTU-BLOCK™** - BTU-BLOCK microporous insulation products feature superior thermal conductivity values, good compressive strength, and low shrinkage at high temperatures. These superior insulating products are ideal for backup in launders and filter boxes as well as carbon bake furnaces and melter/holder furnaces.
- **Kaowool TBM™** - Kaowool TBM 2230 products feature high strength, are lightweight, resist thermal shock and molten aluminum, and offer improved machinability. They are used to produce excellent casting tips.
- **Paper** - Thermal Ceramics paper products, produced from Kaowool ceramic fibers or Superwool® amorphous wool, are noted for outstanding handling characteristics and high insulating value at high temperatures. These versatile materials are used as expansion joint filler or backup insulation.
- **Bulk Fiber** - Thermal Ceramics complete line of refractory bulk fibers is produced by varying composition, fiber length, compressed density, fiber content, fiber diameter, and lubricity to serve a wide range of customer needs including stuffing joints in carbon bake furnace walls.
- **Pyro-Bloc® Modules** - This modular insulation is manufactured from a monolithic slab of Pyro-Log™ fiber in densities ranging from 8 pcf (128 kg/m³) to 15 pcf (240 kg/m³). It combines the insulating advantages of ceramic fiber with fast, easy installation. Ideal uses are in holder furnace doors and roofs.
- **Dense and Insulating Castables** - Thermal Ceramics has engineered a full line of castables that meet the specific property requirements of aluminum furnace operators. The Kaocrete® and Tri-Mor® line are general purpose, refractory castables that can be cast or gunned. High-performance castables, Kaocrete HPM™, Alcast and Albond are non-wetted by molten aluminum and offer superb resistance to mechanical impact and thermal shock. These properties make them an ideal choice below the melt line in holding and melting furnaces. Kaolite®/Firelite® castables feature low thermal conductivity which can result in significant savings in fuel consumption in carbon bake furnaces.
- **K® and JM™ Insulating Firebrick** - Our K and JM grade lightweight insulating firebricks offer low heat conductivity, high hot strengths plus the ability to withstand the most demanding reducing atmospheres. They are used as backup insulation in pot cell floors and carbon bake furnace tub walls and floors.
- **Vacuum Formed Shapes** - Vacuum formed shapes are available in a wide range of organic-free, temperature related compositions. They offer superior insulating performance and excellent aluminum resistance, as well as good hardness and strength over a broad range of uses. They are available in a wide variety of sleeve and shape configurations including tap-out cones, launders, and header boxes.
- **Moldable/Pumpables** - Superfil® 607® Moldable is a ready-to-use insulating putty that adheres well to a wide variety of surfaces, is non-wetting to aluminum, and has excellent strength on drying and firing. Kaofil® Pumpables and Therm-O-Hot Patch™ are designed for spray filling of refractory joints and cracks, such as in carbon baking pit corners.

Carbon Bake Furnace

Thermal Ceramics insulating firebrick and block insulation stand up to the reducing atmospheres, high and long-temperature cycles, and mechanical abuse that exist in carbon bake furnaces. These products, along with our insulating castables and fibers provide the benefits associated with long, consistent service life and low-maintenance requirements: high quality anodes, trouble-free furnace operation, and low operating costs. New products such as BTU-Block microporous insulation provide increased energy efficiency and the capacity for thinner linings.



Tubwalls*

K and JM-23, 25, 26 IFB
Kaolite 1800 Super Lightweight Insulating Castable
Kaolite 2000-HS Insulating Castable
Kaolite 2600-LI Insulating Castable
TR-19/V-1100 Insulating Block
BTU-Block Board/Panel Microporous Insulation

Floor*

K and JM-23, 25, 26, TC-140 and 140-HS Insulating Firebrick (IFB)
Kaolite 2000-HS Insulating Castable
BTU-Block Board/Panel Microporous Insulation

Floor Leveling

Kao-Tuff® C Abrasion-Resistant Castable
Kaocrete HS Dense Castable

Flue Port Blocks

Kaocrete 26 Precast Shapes
Tri-Mor Fused Silica Shapes

Flue Wall Caps

Kaocrete 250-C, 28-LI Dense Castables
Tri-Mor Medium-weight Castable
Tri-Mor Morflo 160 Castable

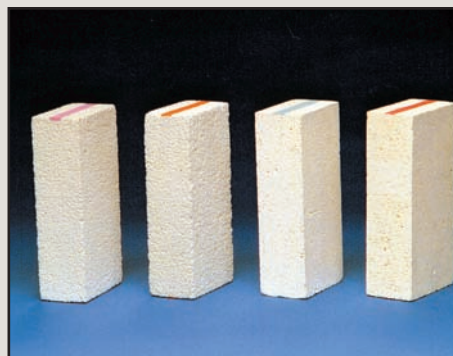
Expansion Joints

Cerablanket Strip
Cerawool Bulk
Superwool 607 MAX and HT Strip/Bulk
Therm-O-Hot Patch
Superfil 607 Moldable

*Backup



Kaolite insulating castable



K and JM series insulating firebrick



Superwool bulk

Electrolytic Reduction Cell

Our insulating firebrick and vermiculite block insulation are proven performers in the reduction cell, providing consistent and reliable, long service life. In combination with an organized maintenance program, these products help provide benefits you can depend on:

- high-quality aluminum
- reduced energy consumption
- trouble-free operation.



Floor/Lower Wall Insulation

TR-19, TR-19 HS, V-1100AL, V-1200AL Insulating Board
TR-2000 SL Board
Blok 607 Block Insulation
K and JM-20, 23 IFB
Kaolite 2200 Insulating Castables

Upper Walls

Morsil® Nitride Bonded Silicon Carbide Brick

Barrier Lining

Moral® BRO Brick

Pot Cell Start-Up Cover

Superwool 607 Blanket (aluminum faced)

Collector Bar Area

Kaofil Moldable
Superfil 607 Moldable
Kaolite 2200 Castable
Kaocrete 26 Castable
Tri-Mor Morflo 160



Superfil 607 Moldable insulating mastic



Thermal Ceramics TR-19 and V-1100AL insulating boards

Holding/Melting Furnace

Thermal Ceramics gunning and casting plastics, our family of non-wetting to molten aluminum castables, and our backup insulation boards and blocks offer an alternative to conventional brick or plastic-lined holding and reverb furnaces. These products are designed to handle harsh service conditions, such as thermal shock and mechanical abuse, as well as attack from corrosive agents. In combination with our backup castable and insulating boards, our products lower energy costs, and help ensure long service life.



Roof

Kao-Plas C, Plascast Castables¹
Kaogun® 30, Kao-Plas G Castables¹
Midcast® Castable¹
Kaolite 2200/2300-LI Castables²

Upper Walls

Kao-Plas C, Plascast Castables¹
Kao-Plas G, Guncrete 160 Castables¹
Midcast Castable¹
TR-19/V-1100 Board²
BTU-BLOCK Board and Panel²

Lower Walls

Alcast Extra HS and Albond Castables¹
Kaocrete HPM 80AL and HPM 65AI Castables¹
Kaocrete HS Castable²
Morbond Castables
Superwool 607 Board, Blok 607 Board²
TR-19/V-1100 Insulating Board²

Floor

Alcast Extra HS and Albond Castables¹
Kaocrete HPM 80AL and HPM 65AI Castables¹
Kaocrete HS Castable²

Door

Pyro-Bloc Modules¹
Kaolite, Insulite Castables¹

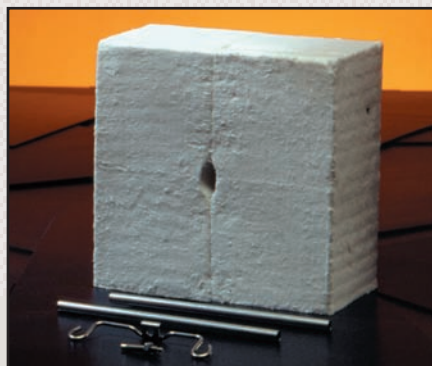
Door Jamb

Kaocrete 250C, Morflo 165 Castables¹
Kaocrete HPM 80AL and HPM 65AI Castables¹

Maintenance Gunning

Kao-Plas G, Plasgun Castables¹
Higun¹

¹Hot Face ²Backup



Pyro-Bloc module and hardware



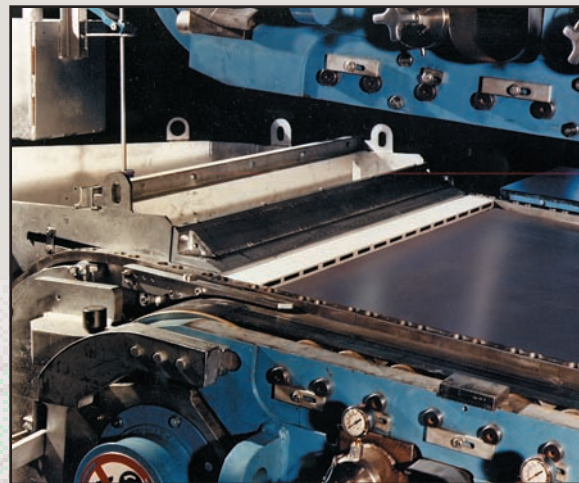
Pumpable castable application



Alcast Extra Castable

Casting Process

Molten aluminum retains its heat and filters well in launders that are either lined with our non-wetting castables and vacuum formed shapes or formed with our specially formulated moldables. Casting tips manufactured with our TBM board technology can produce aluminum sheet and foil with low defect rates, which can improve your production yields and product quality.



Launders

- Alcast Extra HS and Alcast 70FS Castables¹
- Kaocrete HPM 80AL and HPM 65AL Castables¹
- Kaofil Moldable²
- Superfil 607 Moldable^{1,2}
- Alfibond® Shapes¹
- TR-19 Insulating Board²
- BTU-Block Board/ Panel²
- Superwool 607 Paper²
- Blok 607 Board²

Degassing, Filtration and Head Boxes

- Alcast Extra HS and Alcast 70FS Castables¹
- Kaocrete HPM 80AL and HPM 65AL Castables¹
- TR-19 Insulating Board²
- Kaowool Board/Blanket²
- Superwool 607 Board/Blanket/Paper²
- BTU-BLOCK Board/Panel²

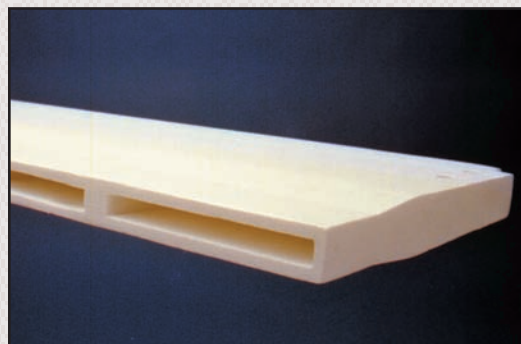
Casting Tips

- Kaowool TBM 2230 Boards
- CT Boards
- Superwool Boards

1. Metal contact / hot face
2. Back up insulation / expansion joint



BTU-BLOCK microporous insulation



Kaowool TBM® Board casting tip

Homogenizing Furnace

Thermal Ceramics has several lining options for homogenizing furnaces, depending on your finished product requirements. Each system installs quickly, reducing downtime, and is thermally efficient with a rapid thermal response. Our linings are also designed to withstand high air velocity and furnace vibration. Some lining materials in board or low shot blanket and module form are extremely clean, minimizing contamination from airborne particulate matter. This, in turn, results in final aluminum products with fewer defects and higher yields.



Furnace Lining

Pyro-Bloc Modules

Kaowool M-Board

Superwool 607 Modules/Board

TR-19/V-1100 Insulating Board

Kaomat 2000-SL/SL Silica Blanket/Modules



Ceramic fiber blanket roll and strip



Pyro-Bloc Ceramic Fiber Module and Stud Gun



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